

AMENDMENTS TO THE DRAWINGS

One new drawing sheet including Fig. 6A has been added.

REMARKS/ARGUMENTS

This is a submission accompanying an RCE and serves as a response to the Final Office Action dated March 20, 2005.

In the Final Office Action, claims 1-13 and 16-23 were pending in the present application with claims 1, 2 and 23 in independent form. By the present Amendment claims 2, 10, 11, 20 and 23 have been amended in order to further clarify the features of the present application and new claim 24 has been added. Claims 1 and 19 have been canceled without prejudice or disclaimer.

The Examiner has objected to the drawings under 37 C.F.R. §1.83(a) because the drawings allegedly do not show the claimed “pin shaped elements” recited in claim 6.

In particular, with regard to the replacement sheet including amended Fig. 6 submitted with Applicants previous response, the Examiner contends that the “pin shaped elements” are still not clearly shown in the drawings. A new sheet of drawings including Figure 6A is attached hereto. It is believed that new Figure 6A clearly illustrates the “pin shaped elements” recited in claim 6 of the present application. In addition, a reference to new Figure 6A has been added to the specification. Specifically, reference numeral 62 in Figure 6A refers to the “pin shaped elements.” Support for new Fig. 6A and the amendments to the specification can be found at least in the original claim 6 and at page 8, line 18 to page 9, line 3 of the present application.

Accordingly, it is respectfully requested that the objection to the drawings be reconsidered and withdrawn.

Applicants appreciate the Examiner’s indication that the objection to the specification in the previous Office Action has been withdrawn.

The Examiner has rejected claims 20-22 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Reconsideration of this rejection is respectfully requested.

With regard to claim 20, the Examiner has indicated that the phrase “a tool according to claim 1” should be replaced with the desired structure. Claim 20 has been amended herein to incorporate the structure of amended claim 2. Further, the Examiner indicates that it is unclear

what claim limitation is meant by the phrase “wherein the cutter tip is not required to be reset or adjusted when a respective active cutting edge thereof becomes worn.”

Claim 20 relates to a method for metal cutting machining of a surface in an opening including operating a tool in accordance with claim 2 at the surface in the opening to metal cut machine the surface, wherein the cutter tip is not required to be reset or adjusted when a respective active cutting edge thereof becomes worn.

As is noted in the specification, “because the cutter tip 7 is designed as an indexable tip and because of the exact positioning of the cutter tip 7 by the supporting surfaces 27 and 29, resetting or adjusting devices, which might weaken the tool 1, are not required.” The specification also notes “[S]ince the cutter tip 7 need merely be rotated if the active cutter 9 becomes worn, it is not disadvantageous for the tool 1 to omit an adjusting device for resetting the cutter tip 7 if it becomes worn.” See Specification, page 14, lines 1-10.

Thus, in accordance with claim 20 the cutter tip need not be reset if it becomes worn. That is, resetting of the tip is not necessary.

Accordingly, it is respectfully submitted that the rejection of 20-22 under 35 U.S.C. § 112, second paragraph, be reconsidered and withdrawn.

Claims 1-5, 7, 9, 14, 15 and 23 have been rejected as allegedly being anticipated by Breuning (U.S. Pat. No. 3,271,842). Reconsideration of the rejection of these claims is respectfully requested.

The Examiner contends that Breuning discloses all of the elements of claim 2. Applicants respectfully disagree.

Claim 2, as amended herein, relates to a tool for metal cutting machining of an opening including a cutter tip having at least one geometrically defined cutting edge, wherein the cutter tip is a hexagonally shaped indexable tip and wherein an angle between each side of the cutter tip and an adjacent side is substantially the same for each side of the cutter tip. The cutter tip has a front side with at least one notch having a V-shaped cross-section formed in the front side. Two supporting regions are provided in the tool for supporting the cutter tip, and the supporting regions have support surfaces against which the cutter tip rests. The support surfaces of the supporting region are oriented with respect to each other at an angle, and the supporting regions

are also so oriented that a line bisecting the angle between the support surfaces runs essentially perpendicular to an active one of the cutting edges, which is the edge that removes metal chips from the surface in the opening. The cutter tip is turnable six times to make six cutting edges available for machining. The tool also includes a clamping claw which holds the cutter tip to the supporting regions, the clamping claw includes a clamping lip that comes to rest on a front side of the cutter tip and engages the clamping notch. The tool and cutter tip thereof are both to be operable for metal cutting machining of valve seats in cylinder heads of internal combustion engines. Support for the amendments made to claim 2 can be found at least at pages 4-5 of the present specification.

Breuning relates to a tool holder for use in a lathe and a flat hexagonal bit 28 for use therein. The bit is fixed in the lathe tool holder by means of a screw. A recess with seating surface 40 of the bit is provided and two lateral supporting surfaces 41 and 43 which are at right angles to the seating surface are also provided. Since Breuning relates to a lathe tool, adjustment of the cutter will typically not be necessary.

Breuning, however, does not disclose a tool for metal cutting machining of an opening including a cutter tip “having a front side with clamping notches having a V-shaped cross-section formed in the front side,” as required by amended claim 2 of the present application.

Further, Breuning fails to disclose a tool including a “a clamping claw which holds the cutter tip to the supporting regions, the clamping claim comprising a clamping lip; wherein the clamping lip comes to rest on a front side of the cutter tip and engages a clamping notch.” In Breuning, the bit 28 is secured to the tool holder via a screw, as is noted above.

Indeed, the Examiner concedes that Breuning does not disclose a cutter tip being secured to the tool by a clamping arm at page 6 of the Office Action, but contends that the clamping block 38 disclosed in U.S. Patent No.4,848,198 to Royal et al. discloses this feature and that it would have been obvious to modify the screw securement means of Breuning with the clamping block of Royal et al. Applicants respectfully disagree.

First, the Examiner has failed to identify and motivation or suggestion in either Breuning or Royal et al. to make the combination that he suggests. The Examiner argues that the that

modifying the screw securement of the bit disclosed in Breuning with the clamping block of Royal et al. would provide for enhanced chip removal. However, the passageways 72, 74 and the discharge orifice 76 of Royal et al. which provide the liquid to break the chips have no relation whatever to securement of the cutting insert 24 in Royal et al.

Further, even if there were a suggestion to make the combination suggested by the Examiner, the combination suggested by the Examiner does not disclose the features of claim 2. In particular, Breuning et al. and Royal et al. both fail to disclose “at least one clamping notch having a V-shaped cross-section formed in the front side” of the cutter tip or a clamping claw with “a clamping lip; wherein the clamping lip comes to rest on a front side of the cutter tip and engages the clamping notch,” as is required by amended claim 2.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claims 3-5, 7, 9, 14 and 15, are patentable over Breuning for at least the reasons discussed above.

Claim 23 has been amended to substantially include the patentable features of claim 2 described above. Thus, it is respectfully submitted that claim 23 is patentable over Breuning for reasons at least similar to those described above with respect to claim 2.

Claims 1-3, 9 and 20-23 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 5,746,549 to Kress et al.

Kress et al. as understood by Applicants, relates to a reamer 1 used to remove chips from a boring surface having a head body 3 with a cavity 5 the outer contour of which preferably corresponds to cutting plate 7. The depth of the cavity 5 is set so that the cutting plate slightly projects therefrom and the outer surface of the cutting face 9 of cutting plate 7 smoothly merged into the outer surface of the head body 3.

Kress, however, does not disclose does not a tool for metal cutting machining of an opening including a cutter tip “having a front side with at least one clamping notch having a V-shaped cross-section formed in the front side,” as required by amended claim 2 of the present application.

Further, Kress fails to disclose a tool including a “a clamping claw which holds the cutter tip to the supporting regions, the clamping claw comprising a clamping lip; wherein

the clamping lip comes to rest on a front side of the cutter tip and engages the clamping notch.” In Kress, the cutting plate 7 is secured in the head body 3 via a fastening arrangement 19, including projection 23 secured to the cutting plate 7 and extending into the hole 25 in the head body 3. The projection includes at least one lock surface 27 that is engaged by locking member 29.

Indeed, the Examiner concedes that Kress does not disclose a cutter tip being secured to the tool by a clamping arm, but contends that the clamping block 38 disclosed in Royal et al. discloses this feature and that it would have been obvious to modify the securing means of Kress with the clamping block of Royal et al. Applicants respectfully disagree.

First, the Examiner has failed to identify and motivation or suggestion in either Kress or Royal et al. to make the combination that he suggests. The Examiner argues that the that modifying the fastening means in Kress with the clamping block of Royal et al. would provide for enhanced chip removal. However, as noted above, the passageways 72, 74 and the discharge orifice 76 of Royal et al. which provide the liquid to break the chips have no relation whatever to securing of the cutting insert 24 in Royal et al.

Further, even if there were a suggestion to make the combination suggested by the Examiner, the combination does not disclose the features of claim 2, since Kress and Royal et al. both fail to disclose “at least one clamping notch having a V-shaped cross-section formed in the front side” of the cutter tip or a clamping claw with “a clamping lip; wherein the clamping lip comes to rest on a front side of the cutter tip and engages the clamping notch,” as is required by amended claim 2 of the present application.

Accordingly, it is respectfully submitted that claim 2 is patentable over Kress for at least the reasons described above.

Claim 20 has been amended in order to substantially include the structure of claim 2 as was suggested by the Examiner. Thus, it is believed that claim 20 is also patentable over Kress for at least the reasons described above with regard to claim 2.

As noted above, claim 23 has been amended herein in order to substantially include the patentable features of claim 2 described above. Thus, it is respectfully submitted that claim 23 is

also patentable over the Kress for reasons at least similar to those described above with reference to claim 2.

Claim 6 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Erickson (U.S. Pat. No. 4,202,650). Reconsideration of the rejection of these claims is respectfully requested.

Claim 6 depends from claim 2, indirectly. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 2 is patentable over Breuning in view of Erickson, at least because Breuning and Erickson, either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 6, are patentable over the cited art for at least the reasons mentioned above.

Claim 8 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Satran et al. (U.S. Pat. No. 5,836,724). Reconsideration of the rejection of these claims is respectfully requested.

Claim 8 depends from claim 2, indirectly. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 2 is patentable over Breuning in view of Satran et al., at least because Breuning and Satran et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 8, are patentable over the cited art for at least the reasons mentioned above.

Claims 10-13 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Royal et al. (U.S. Pat. No. 4,848,198). Reconsideration of the rejection of these claims is respectfully requested.

Claim 10, as amended herein depends from claim 2, and claims 11 and 12 in turn depend on claim 10. As noted above, it is believed that claim 2 is patentable over Breuning and Royal et al. for at least the reasons discussed above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claims 10-12, are patentable over the cited art for at least the reasons mentioned above.

Claim 13 has been canceled without prejudice or disclaimer. Thus, it is respectfully submitted that the rejection of claim 13 is moot.

Claims 10-13 have also been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kress et al. in view of Royal et al. Reconsideration of the rejection of these claims is respectfully requested.

Claim 10, as amended herein depends from claim 2, and claims 11 and 12 in turn depend on claim 10. As noted above, it is believed that claim 2 is patentable over Kress and Royal et al. for at least the reasons discussed above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claims 10-12, are patentable over the cited art for at least the reasons mentioned above.

Claim 13 has been canceled without prejudice or disclaimer. Thus it is respectfully submitted that the rejection of claim 13 is moot.

Claims 16 and 17 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Link et al. Reconsideration of the rejection of these claims is respectfully requested.

Claims 16-17 depend from claim 2. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 1 is patentable over Breuning in view of Link et al., at least because Breuning and Link et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claims 16-17, are patentable over the cited art for at least the reasons mentioned above.

Claims 16 and 17 have also been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kress et al. in view of Link et al. Reconsideration of the rejection of these claims is respectfully requested.

Claims 16-17 depend from claim 2. As noted above, it is believed that claim 2 is patentable over Kress et al. for at least the reasons discussed above. Further, it is respectfully submitted that claim 2 is patentable over Kress et al. in view of Link et al., at least because Kress et al. and Link et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claims 16-17, are patentable over the cited art for at least the reasons mentioned above.

Claim 18 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Hellstrom et al. Reconsideration of the rejection of these claims is respectfully requested.

Claim 18 depends from claim 2. As noted above, it is believed that claim 2 is patentable over Breuning for at least the reasons discussed above. Further, it is respectfully submitted that claim 1 is patentable over Breuning in view of Hellstrom et al., at least because Breuning and Hellstrom et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 18, are patentable over the cited art for at least the reasons mentioned above.

Claim 18 has also been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kress et al. in view of Hellstrom et al. Reconsideration of the rejection of these claims is respectfully requested.

Claim 18 depends from claim 2. As noted above, it is believed that claim 2 is patentable over Kress et al. for at least the reasons discussed above. Further, it is respectfully submitted that claim 2 is patentable over Kress et al. in view of Hellstrom et al., at least because Kress et al. and Hellstrom et al., either alone or in combination, fail to show or suggest the patentable features of claim 2 described above.

Accordingly, it is respectfully submitted that claim 2, and the claims depending therefrom, including claim 18, are patentable over the cited art for at least the reasons mentioned above.

Claim 19 has been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Breuning in view of Link et al. Claim 19 has also been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kress et al. in view of Link et al. Reconsideration of the rejection of these claims is respectfully requested.

As noted above, claim 19 has been canceled without prejudice or disclaimer.

Accordingly, it is respectfully submitted that the rejection of claim 19 is moot.

In light of the remarks and amendments made herein, it is respectfully submitted that the claims of the present application are patentable over the cited art and are in condition for allowance.

Reconsideration of the present application is respectfully requested.

EXPRESS MAIL CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail to Addressee (mail label #EV342540061US) in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 18, 2006:

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Respectfully submitted,



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